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Glenn Brown
Executive Director-
Public Policy

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November 3, 1997

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street N.W., Room 222
Washington, D.C. 20554

RE: CC Dockets 96-45 and 97-160

Dear Mr. Caton:

Today, Jim Sichter and Pete Sywenki of Sprint, Whit Jordan of BellSouth, and Brenda Fox and the undersigned of U S WEST, met with Maryland PSC Chairman and Joint Board member Russell Frisby and Maryland and Joint Board Staff member Ann Dean to review the Benchmark Cost Proxy Model (BCPM) and the funding of universal service to high-cost areas. A copy of the materials used in this presentation are attached.

In accordance with Commission Rule 1.1206(a)(1), the original and three copies of this summary of the presentation is being filed with your office. Acknowledgment and date or receipt are requested. A copy of this submission is provided for this purpose. Please contact me if you have questions.

Sincerely,

Attachments

cc: Honorable Russell Frisby
Ms. Ann Dean

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List ABCDE

BCPM2

BCPM, Version 2

Enhancements to the

Benchmark Cost Proxy Model

November 3rd, 1997

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BCPM2

What the BCPM2 Does!

- It does estimate the costs that would be incurred by an efficient local provider serving the entire market.
- It does assume state-of-the-art technology, in certain cases more advanced that what currently is used.
- It does work! The network constructed by the model functions and builds sufficient plant to reach all customers.
- The model meets the FCC criteria, mandates and guidelines for proxy models.

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What the BCPM2 Doesn't Do!

- It does not reproduce the costs incurred by any existing provider.
- It does not replicate the network layout as it exists today.
- It does not (necessarily) use the same materials used in the network today.
- In its preliminary form it does not estimate the costs of unbundled network elements. (Model has been used to produce loop costs; soon to incorporate UNE modules.)

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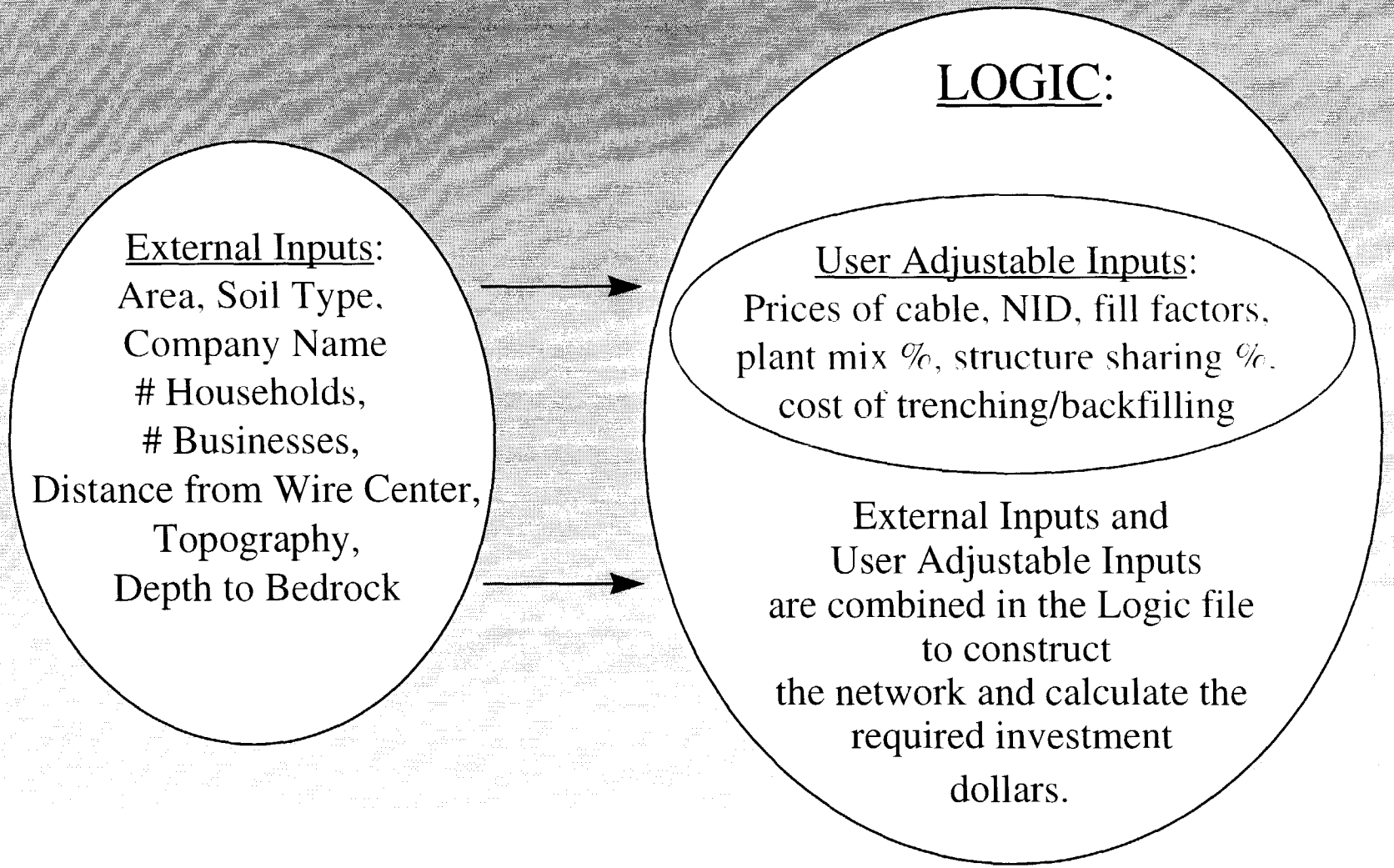
Flow of Information



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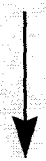
Flow of Information (cont.)

How the LOGIC file works:
User Adjustable Inputs and External Inputs are combined
in a series of If/Then statements and mathematical calculations.

These produce figures (output) on the initial investment required:
Total length of feeder,
total length of distribution,
number of lines on copper,
number of lines on small vs. large digital loop carriers
number of ducts or poles or manholes
investment dollars for buried/underground/aerial
for the specific area.



Next step is to turn investment dollars into monthly costs...

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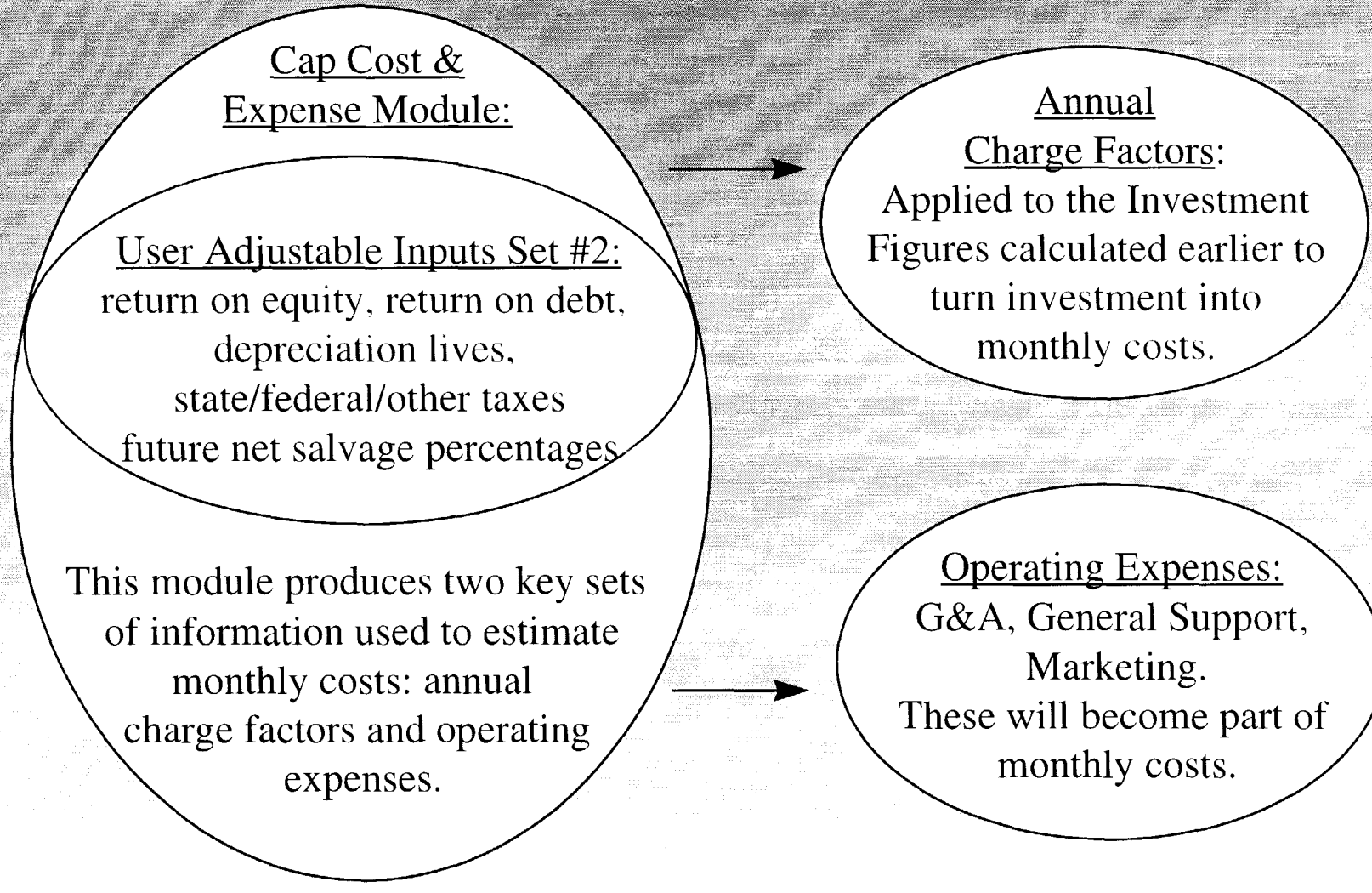

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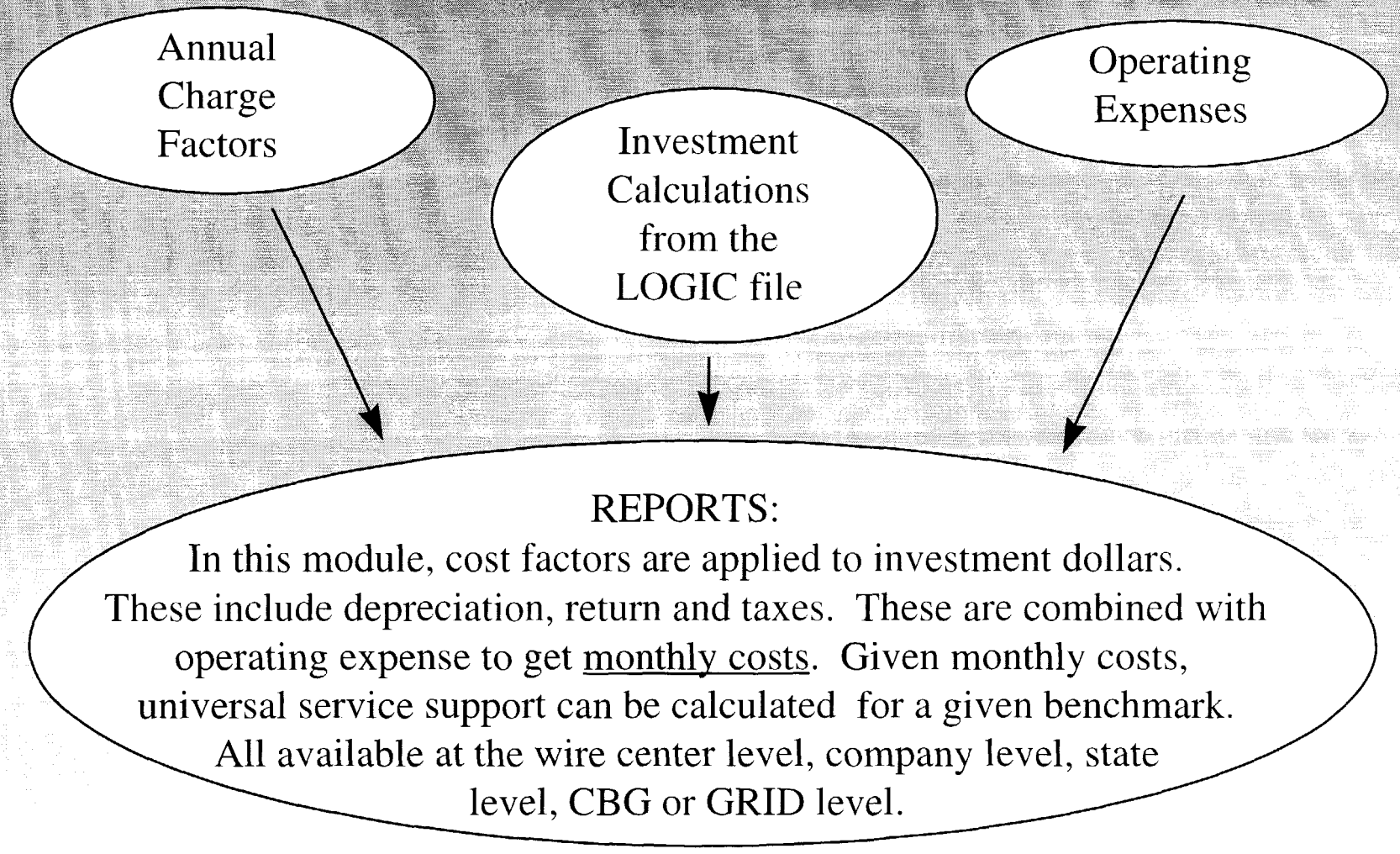

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BCPM2 Enhancements: BCPM to BCPM2- New Data Source for Wire Center Boundaries

- Because costs vary greatly within a single wire center, cost estimation must occur below the wire center level.
- Accurate wire center boundaries are the key to measuring costs accurately.
- BLR boundary information is mapped to individual census blocks allowing for greater detail of analysis.
- Hatfield 4.0 (and BCPM1.1) map only to census block group level. Result is misallocation of customers.

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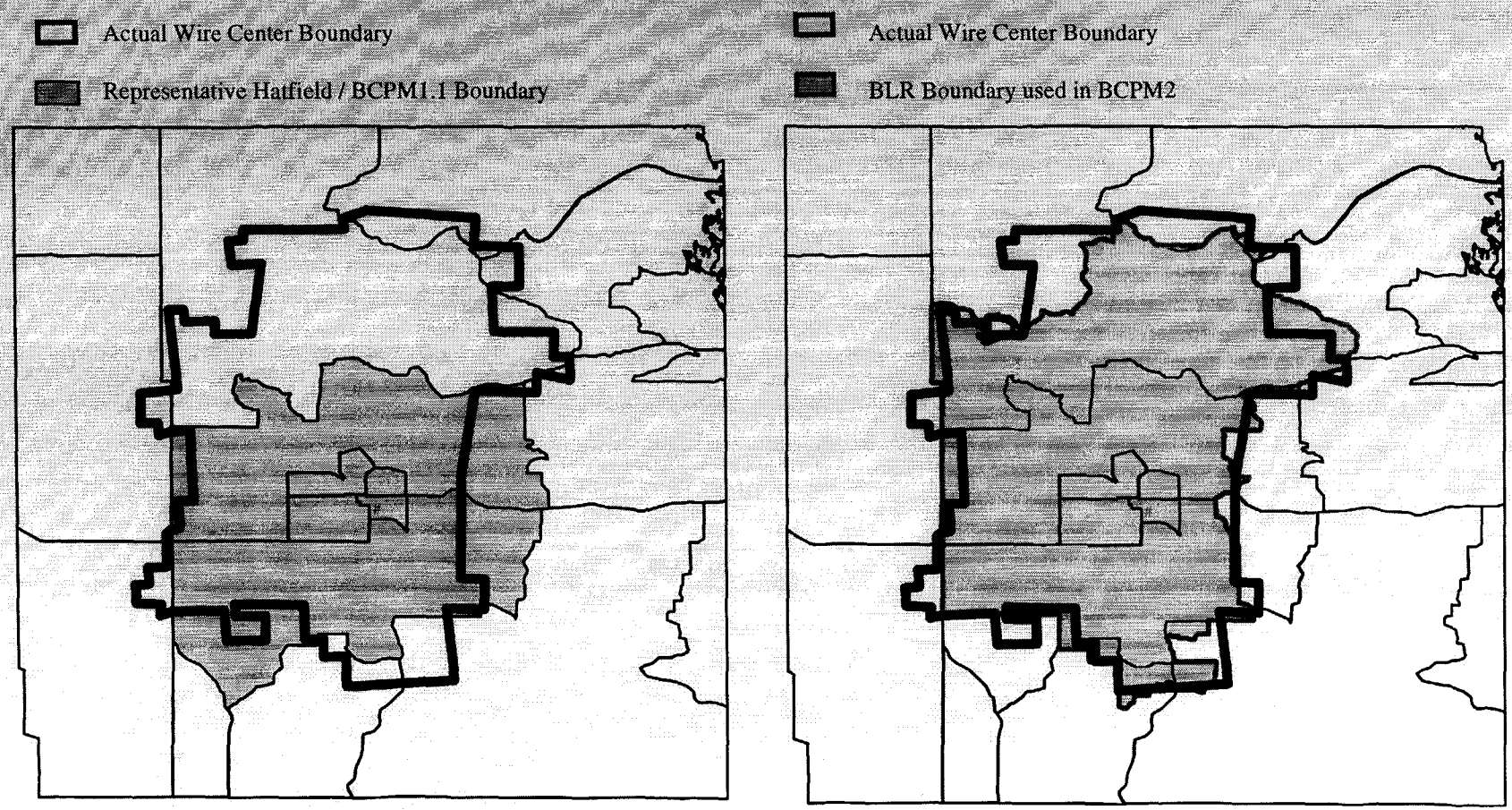
Example:
Wire Center Boundary based on Census Blocks vs. Census Block Groups



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Moving Below the CBG Level:

- Previously, entire CBG was mapped to a certain wire center and costs calculated. CBGs served by 2 or more wire centers were "assigned" only to one.
- Distance/Density key cost drivers. BOTH are distorted by mis-assignment of customers.
- Result: Access line count was inaccurate, required investment was mis-stated, inaccurate costs.
- Solution: New data source allows mapping of individual census blocks to wire centers, allowing validation of access line counts and more accurate cost estimates.

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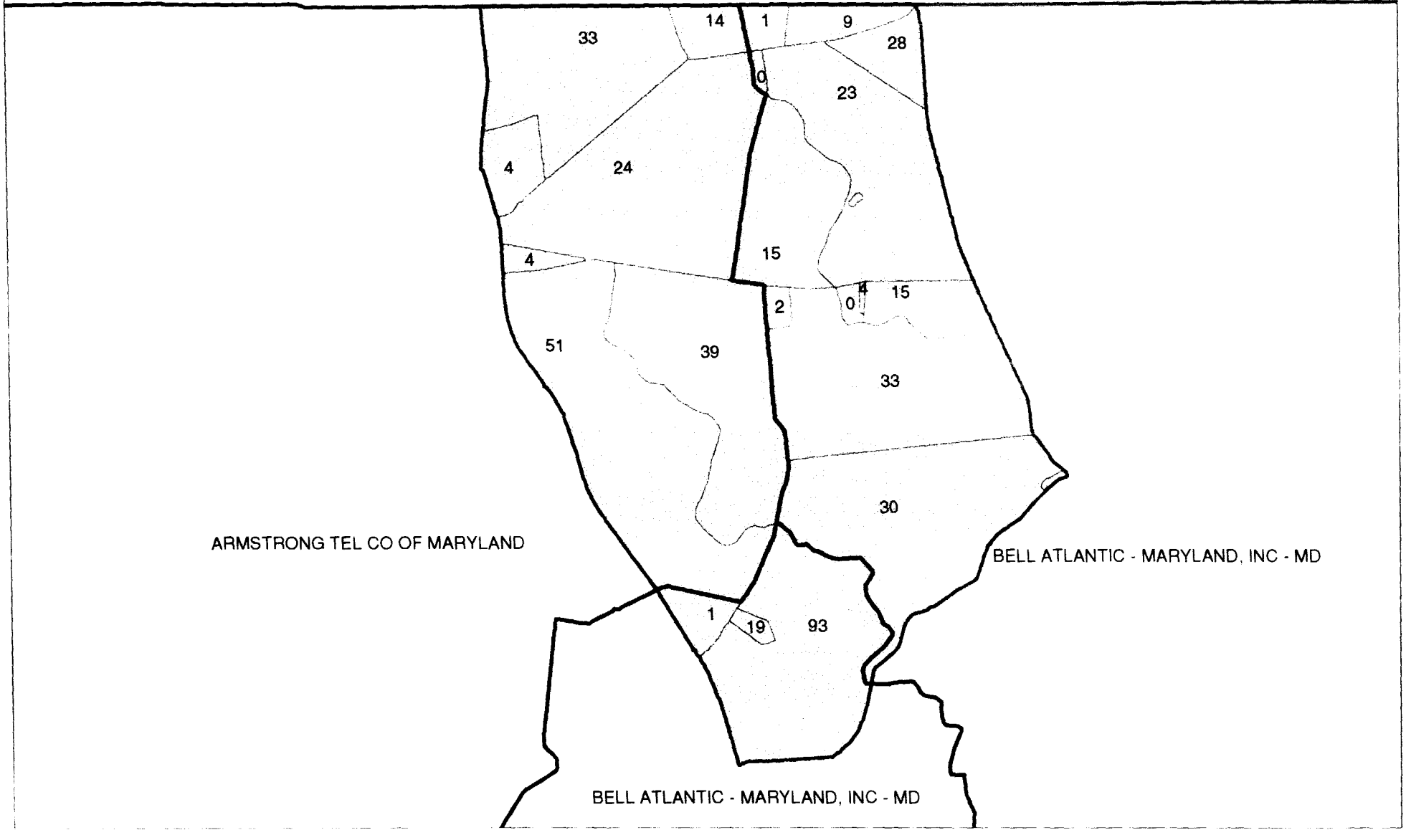

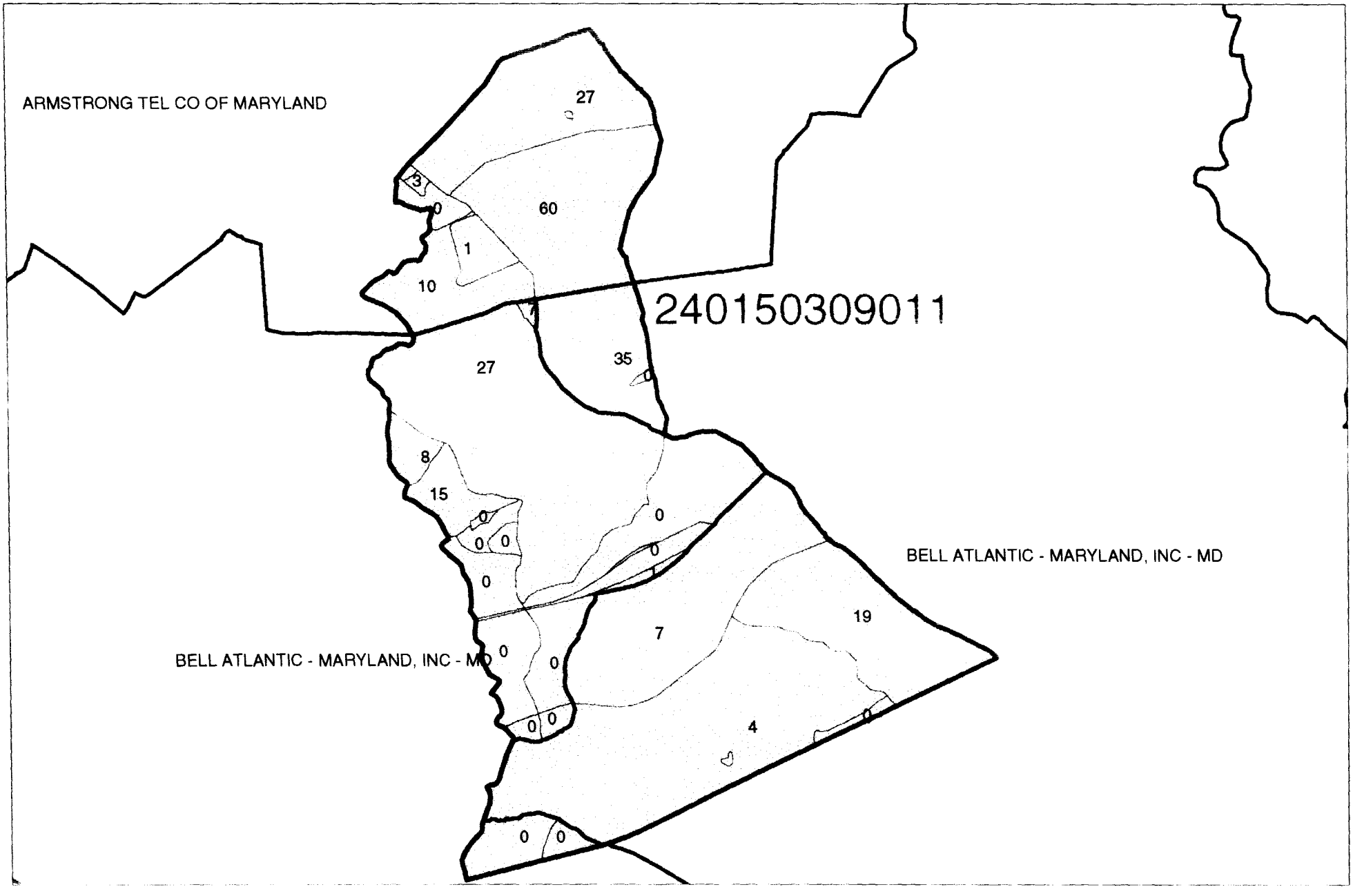
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BCPM2

Enhancements: BCPM1.1 to BCPM2 Below the CBG Level in Rural Areas

- Previous Issue: Standard assumption for network construction was customers uniformly distributed throughout CBG. This was inappropriate for rural areas.
- Previous approach: For CBGs with density < 5 HH per sq. mile,

  -reduce total CBG area to equivalent of 500 ft. "buffer" along roads

  -assume all customers located within this new area but still uniformly distributed

  -assume new area is square, build network as before
- Problem: Did not eliminate enough vacant area, no accounting for existing clusters of rural customers.

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Enhancements: BCPM1.1 to BCPM2 Below the Rural CBG Level (cont.)

- New Approach: Eliminate CBGs completely, Overlay the Wire Center with Grids (1/25th to 1/200th degree).
- Eliminate areas with no population and no road miles.
- Reduce grid size further to target customer location.
- Assume population is distributed along road miles (validated econometrically)
- Result: New Model builds to clusters of customers where they actually exist.
- Result: New Model eliminates building plant to unpopulated areas.

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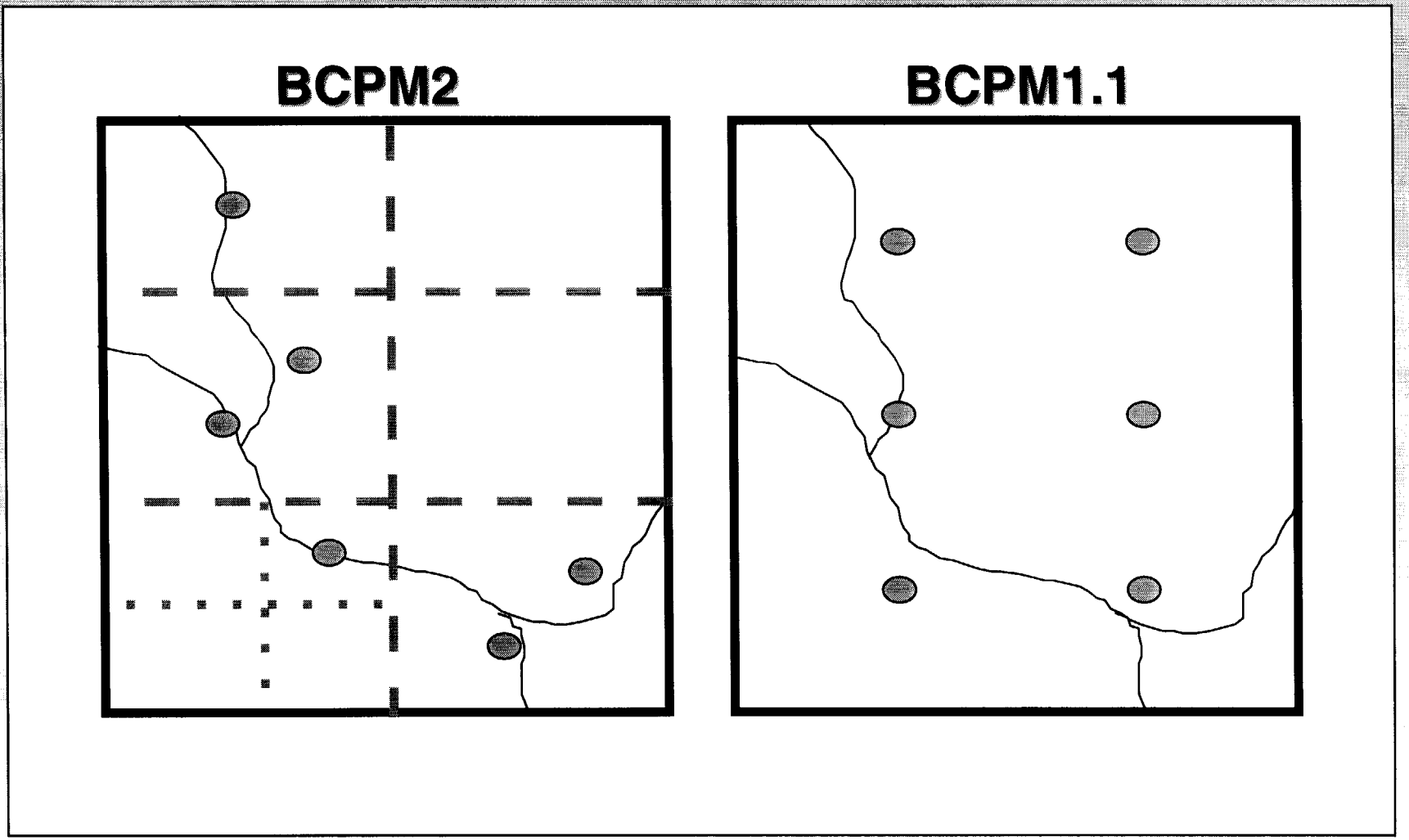
BCPM2



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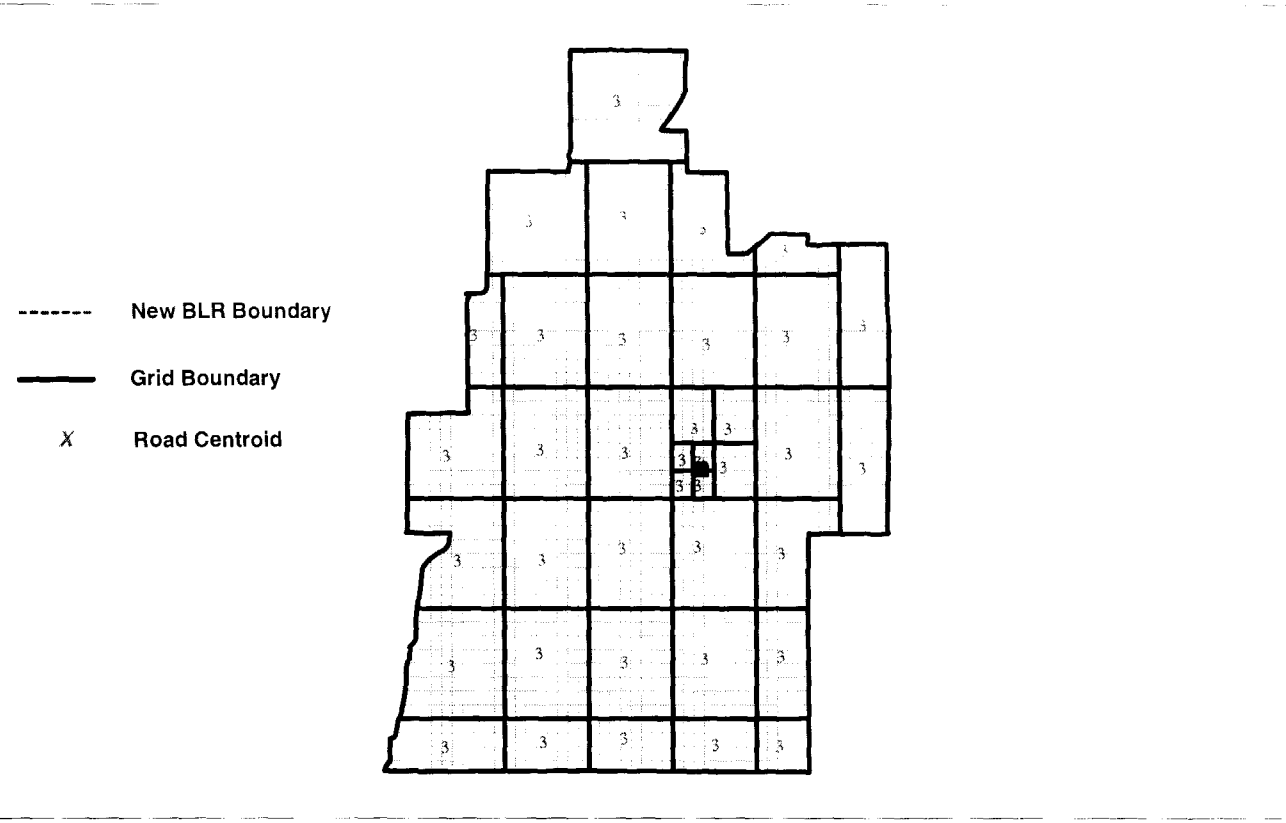
Actual grids used reflect engineering area constraints.

- Various sized grids applied to actual wire center. Road centroid will partition each grid into quadrants.



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Enhancements: BCPM1.1 to BCPM2
Tilting the Feeder to Target Engineering to Customer Locations

- BCPM (& Hatfield) design sets initial feeder legs at NSEW, regardless of actual CBG location.
- Issue: Not always appropriate for more distant areas where large amounts of subfeeder required. Not economically efficient.
- BCPM2 Solution: Allowing feeder routes to "tilt" targets feeder at population, minimizes sub-feeder.

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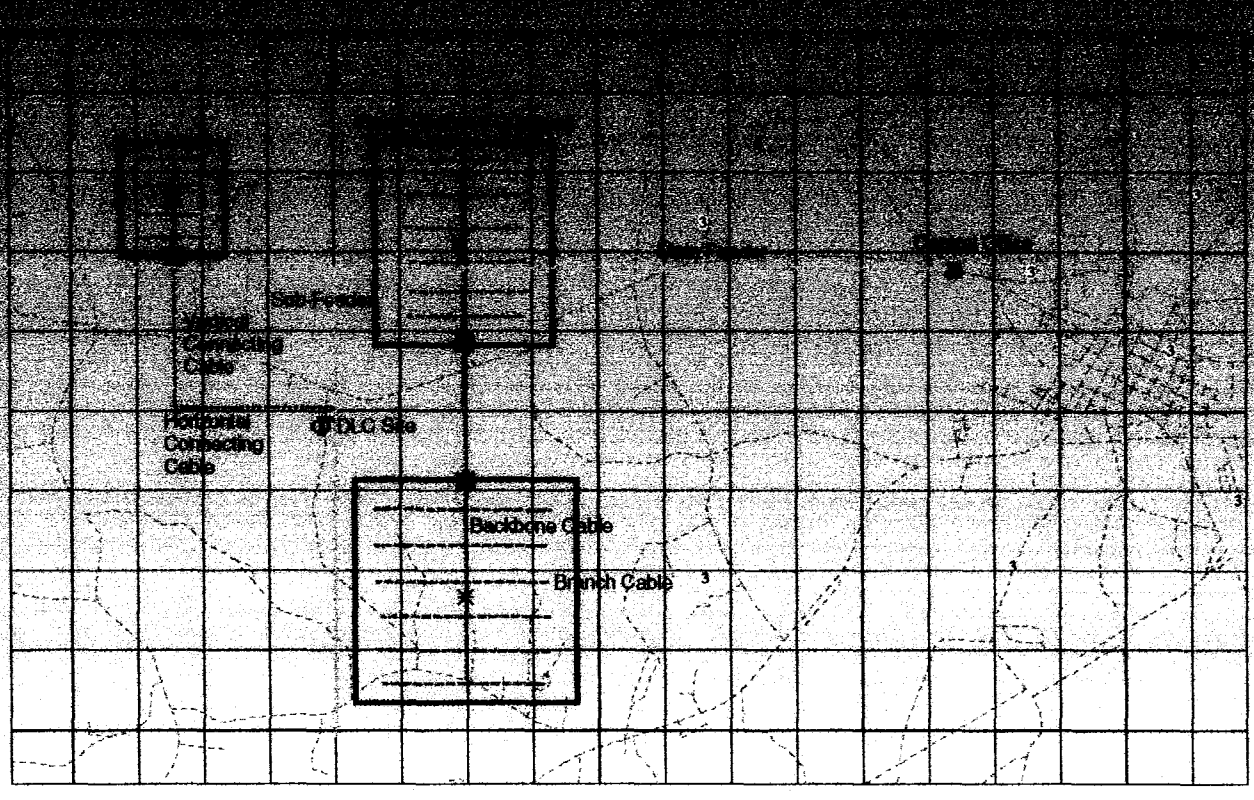

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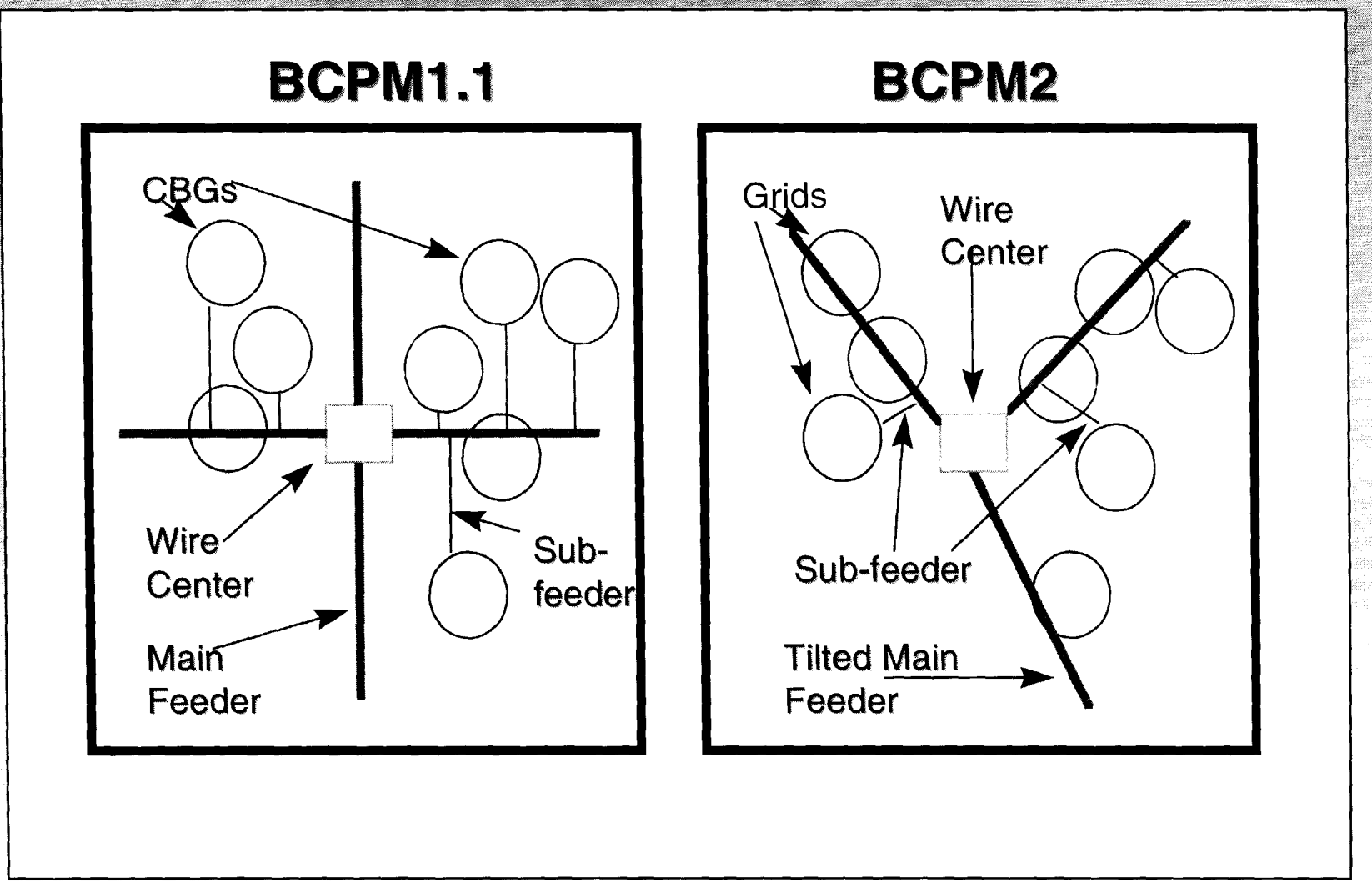

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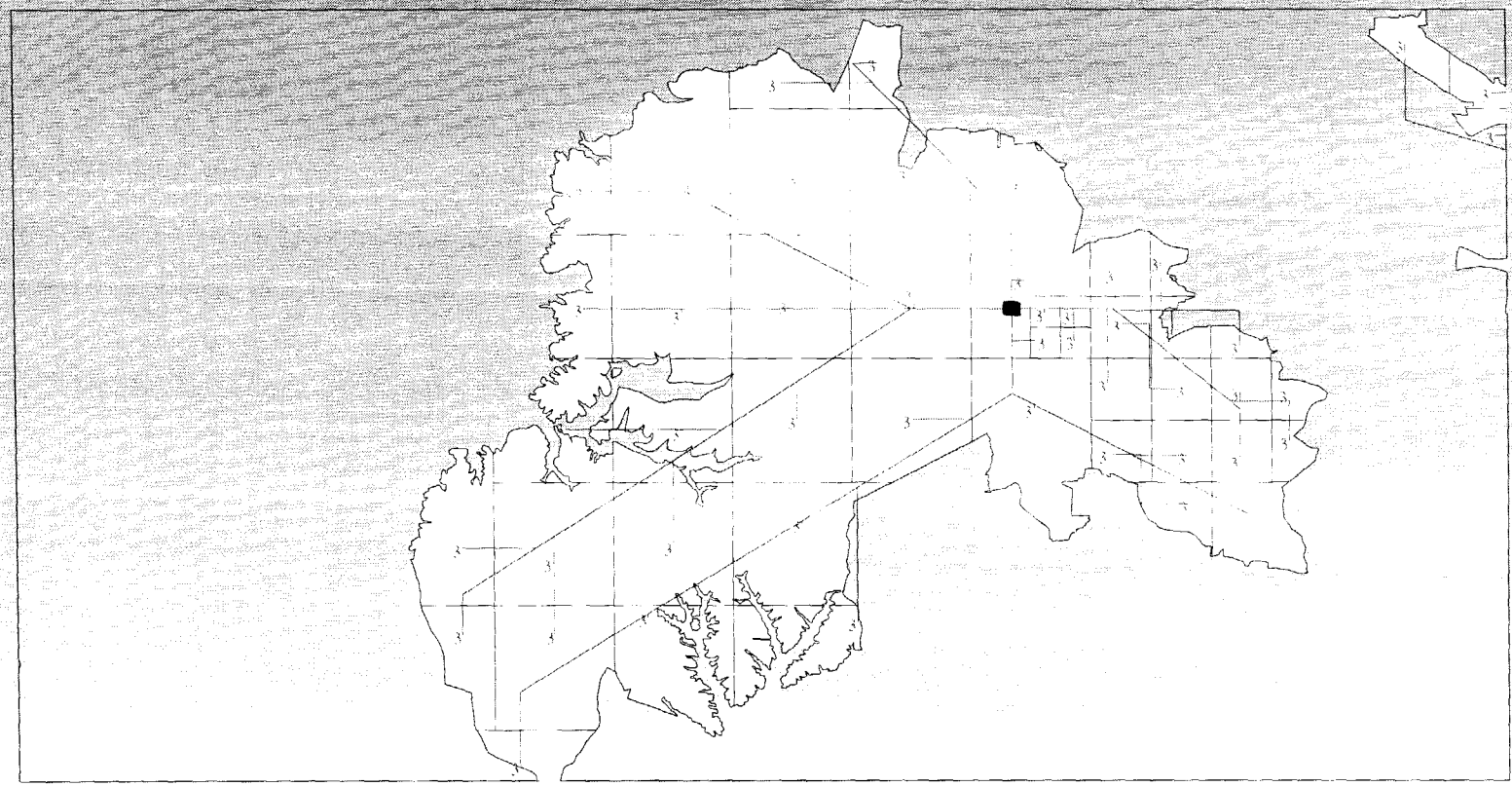
Example of New Feeder Engineering

Tilting main feeder (creating a Y effect) in order to target feeder to actual customer locations within the wire center.



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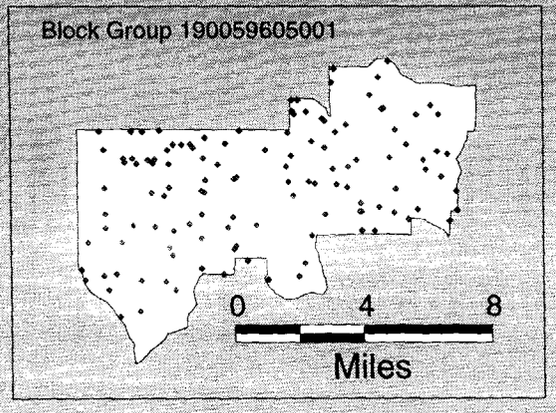
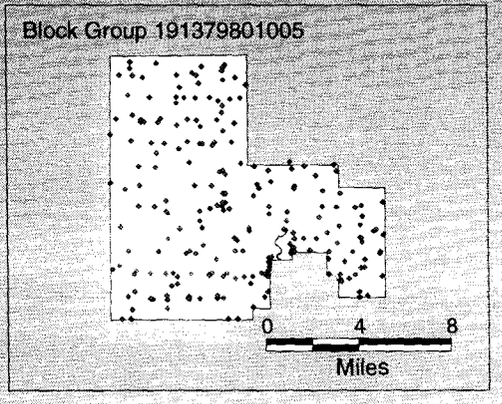
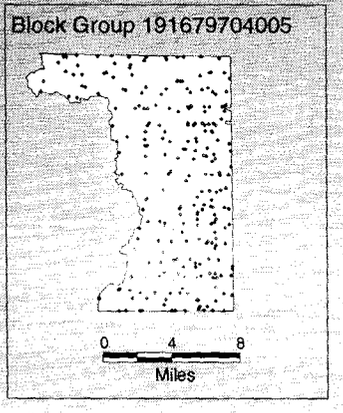
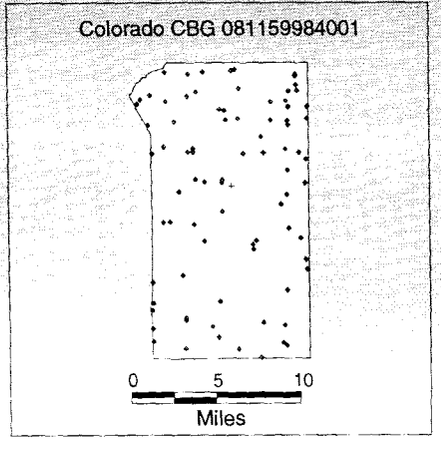
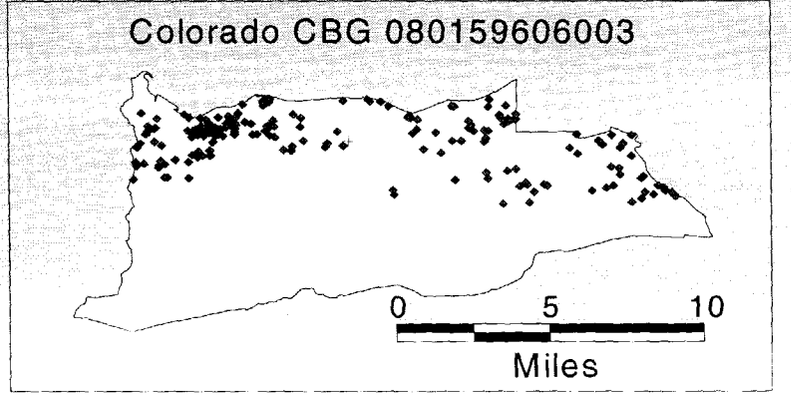
Examples of Customer Location from Satellite Maps

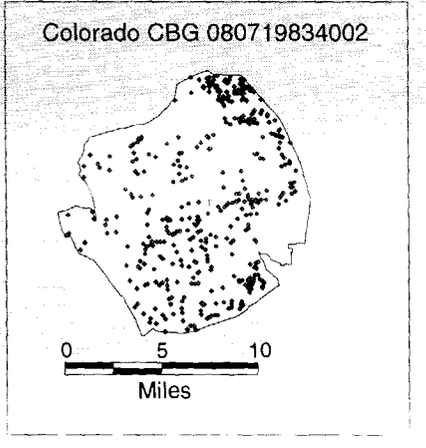












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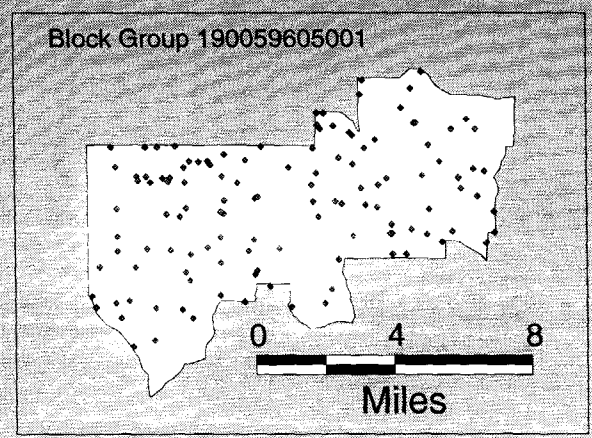
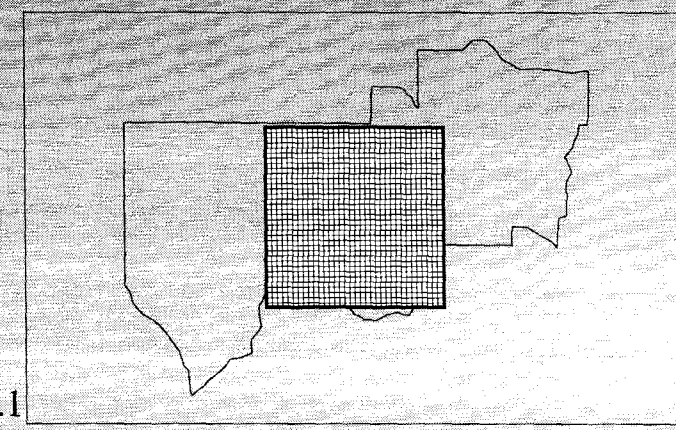
Examples of Customer Location Mapping by Models



Satellite



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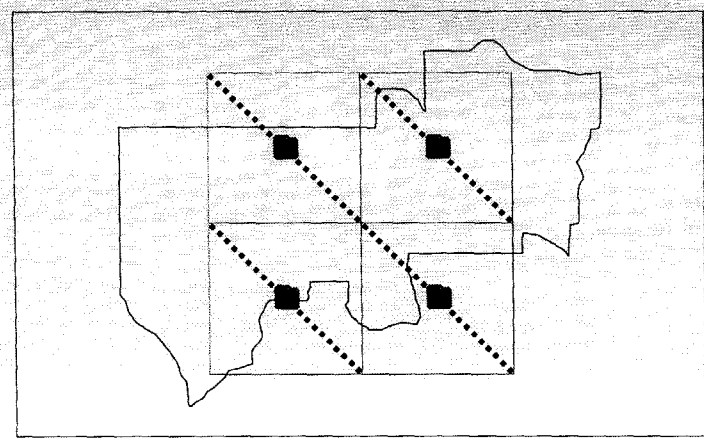
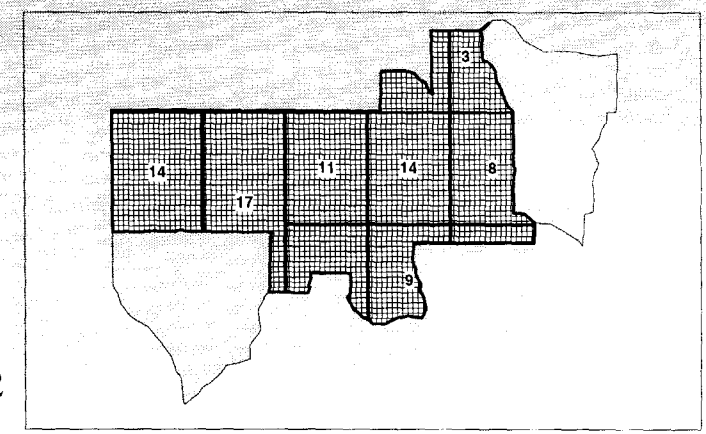


Hatfield



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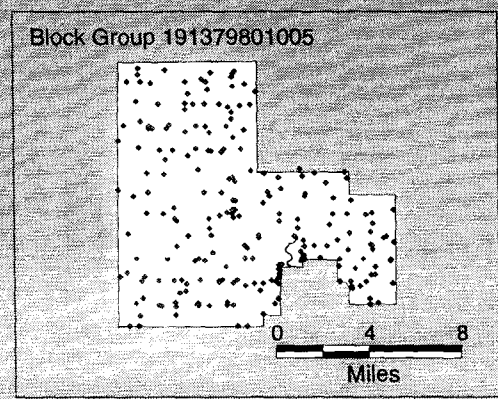
Examples of Customer Location Mapping by Models



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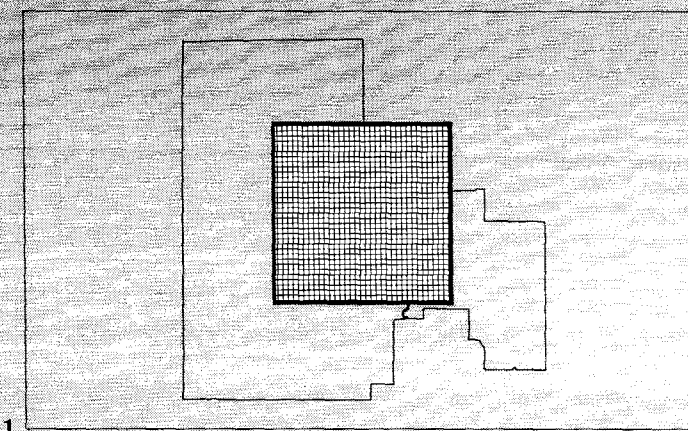

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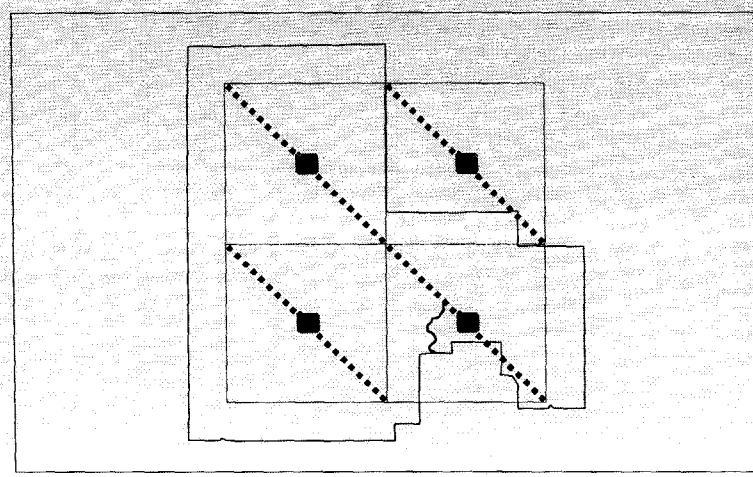

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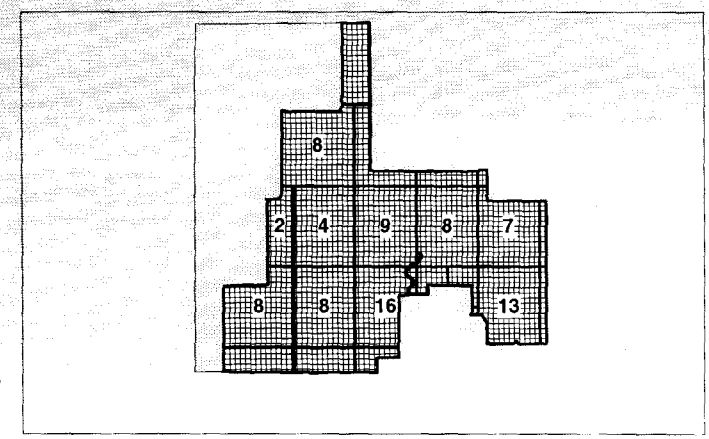

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Enhancements: BCPM to BCPM2 Expense Module Changes

- Previously, all expenses calculated on per-line basis.
- Issue: This approach can distort by either…
  -applying too much plant-related expense in dense areas, or
  -applying expenses where they are actually not incurred (e.g. aerial metallic expense)
- Solution: Allow user to determine when expenses are applied "per investment category", "per line", or combination of both.
- Average Costs unaffected, cost distribution changes.

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